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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SWERDLOW, DANIEL

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 01/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,158

Applicant(s)

NORRELL ET AL.

Examiner

Daniel Swerdlow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 16 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Quarles (U. S. Patent 1,711,653).

3. Claim 1 claims a load coil comprising a coupled inductor with two windings wrapped about an inductor core with a first capacitive element between the input of the first winding and the output of the second winding and a second capacitive element between the input of the second winding and the output of the first winding. Quarles discloses a load coil comprising a coupled inductor with two windings wrapped about an inductor core with capacitors connected diagonally across the windings (Fig. 1 and page 1, lines 99-102). Claim 1 contains language indicating the inductor is configured to counteract capacitance across the loop to improve transmission of POTS-based signals and that the capacitive elements are configured to permit passage of DSL signals. A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex*

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parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Because the load coil disclosed by Quarles is structurally identical to the load coil of Claim 1, the recitation related to use carries no weight. Claim 1 contains language indicating the capacitances of the capacitive elements are selected based upon an inter-winding capacitance between the first winding and the second winding. The method by which the capacitances are determined does not affect patentability.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, Claim 1 is unpatentable over Quarles.

4. Claim 16 claims a load coil comprising inductive means for conditioning POTS signals as they traverse the local loop and capacitive means coupled to the inductive means for permitting DSL signals to pass across the load coil. Quarles discloses a loading system comprising inductive means and capacitive means (Fig. 1 and page 1, lines 99-102). As stated above apropos of Claim 1, because the loading system disclosed by Quarles is structurally identical to the load coil of Claim 1, the recitation related to use carries no weight. Claim 16 contains language indicating the capacitances of the capacitive means are based upon a capacitance of the inductive means. As stated above apropos of Claim 1, the method by which the capacitances are determined does not affect patentability. Therefore, Claim 16 is unpatentable over Quarles.

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5. Claim 22 claims a system comprising: a first local loop including a first wire and a second wire; a second local loop including a third wire and a fourth wire; a coupled inductor including an inductor core, a first inductive winding coupling the first wire to the third wire and a second inductor winding coupling the second wire to the fourth wire; and capacitive elements including a first capacitor coupling the first wire to the fourth wire and a second capacitor coupling the second wire to the third wire. Quarles discloses a loading system that includes all these elements (Fig. 1). Claim 22 contains language indicating the capacitances of the capacitive means are based upon a capacitance of the inductive means. As stated above apropos of Claim 1, the method by which the capacitances are determined does not affect Patentability. Therefore, Claim 22 is unpatentable over Quarles.

6. Claims 18 through 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Tambe et al. (US Patent Application Publication 2002/0113649 A1).

7. Claim 18 claims a method for improving simultaneous transmission of POTS-band and DSL signals across a local loop, comprising the steps of: inductively coupling a first segment of the local loop to a second segment of the local loop to condition the POTS-band signals traversing the local loop; and capacitively coupling a first segment of the local loop to a second segment of the local loop to pass the DSL signals traversing the local loop with low attenuation. Tambe discloses a modified load coil (Fig. 6, reference 600) that inductively (Fig. 6, reference 621, 622; paragraph 0059) couples a first segment of the local loop (Fig. 6, reference 610 CO side) to a second segment of the local loop (Fig. 6, reference 610 CPE Side) via a coupled inductor (paragraph 0063) and capacitively couples a first segment of the local loop to a second

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segment of the local loop (Fig. 6, reference 641, 642). Claim 18 further claims the capacitances of the capacitive elements are selected based upon a capacitance of the coupled inductor. Tambe discloses selecting capacitance by collecting frequency response data for the modified load coil by sweeping the value of the capacitance across a range. Because the capacitance of the coupled inductor is included in the modified load coil during this procedure, its capacitance influences the result, and the capacitance of the capacitors is inherently based on the capacitance of the coupled inductor. Therefore, Tambe anticipates all elements of Claim 18.

8. Claim 19 claims the method of Claim 18 wherein the step of inductively coupling includes coupling a first wire of the first segment of the local loop to a first wire of the second segment of the local loop via a first inductor winding and coupling a second wire of the first segment of the local loop to a second wire of the second segment of the local loop via a second inductor winding. As stated above apropos of Claim 18, Tambe anticipates all elements of that claim. In addition, Tambe discloses coupling a first wire of the first segment of the local loop (Fig. 6, reference 610 CO Side upper wire) to a first wire of the second segment of the local loop (Fig. 6, reference 610 CPE Side upper wire) via a first inductor winding (Fig. 6, reference 621) and coupling a second wire of the first segment of the local loop (Fig. 6, reference 610 CO Side lower wire) to a second wire of the second segment of the local loop (Fig. 6, reference 610 CPE Side lower wire) via a second inductor winding (Fig. 6, reference 622). Therefore, Tambe anticipates all elements of Claim 19.

9. Claim 20 claims the method of Claim 18 wherein the step of capacitively coupling includes coupling a first wire of the first segment of the local loop to a second wire of the second segment of the local loop via a first capacitive element and coupling a second wire of the first

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segment of the local loop to a first wire of the second segment of the local loop via a second capacitive element. As stated above apropos of Claim 18, Tambe anticipates all elements of that claim. In addition, Tambe discloses coupling a first wire of the first segment of the local loop (Fig. 6, reference 610 CO Side upper wire) to a second wire of the second segment of the local loop (Fig. 6, reference 610 CPE Side upper wire) via a first capacitive element (Fig. 6, reference 641) and coupling a second wire of the first segment of the local loop (Fig. 6, reference 610 CO Side lower wire) to a first wire of the second segment of the local loop (Fig. 6, reference 610 CPE Side lower wire) via a second capacitive element (Fig. 6, reference 642). Therefore, Tambe anticipates all elements of Claim 20.

10. Claim 21 claims the method of Claim 18 wherein the step of capacitively coupling includes coupling a first wire of the first segment of the local loop to a first wire of the second segment of the local loop via a first capacitive element and coupling a second wire of the first segment of the local loop to a second wire of the second segment of the local loop via a second capacitive element. As stated above apropos of Claim 18, Tambe anticipates all elements of that claim. In addition, Tambe discloses coupling a first wire of the first segment of the local loop (Fig. 6, reference 610 CO Side upper wire) to a first wire of the second segment of the local loop (Fig. 6, reference 610 CPE Side upper wire) via a first capacitive element (Fig. 6, reference 641) and coupling a second wire of the first segment of the local loop (Fig. 6, reference 610 CO Side lower wire) to a second wire of the second segment of the local loop (Fig. 6, reference 610 CPE Side lower wire) via a second capacitive element (Fig. 6, reference 642). Therefore, Tambe anticipates all elements of Claim 21.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 2, 3, 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quarles in view of Federal Telephone and Radio Corporation (Reference Data for Radio Engineers).

13. Claim 2 claims the load coil of Claim 1 wherein the capacitive elements have a capacitance in the range of 10 nF to 82 nF. As stated above apropos of Claim 1, Quarles discloses all relevant elements of that claim. Therefore, Quarles discloses all relevant elements of Claim 2 with the exception of explicit numerical specification of the capacitance values. Quarles specifies the value of the capacitors as being half of the value to be used between the middle points of the loading coils (page 4, lines 58-64) which is specified to be between .4 and .8 of the total between the wires of one section of the loop. Quarles therefore teaches a value of the capacitors between .2 and .4 of the capacitance of a loop section. Federal Telephone and Radio Corporation teaches that the capacitance of a mile of 24 AWG telephone transmission line is .075 μ F (page 111). A 6,000 foot loop section, therefore, has a capacitance of .075(6000/5280) μ F which is equal to .085 μ F or 85 nF. Hence, the values Quarles teaches are between .2(85)nF and .4(85) nF, that is, between 17 nF and 34 nF. It would have been obvious to one skilled in the art at the time of the invention to utilize the published values for transmission line capacitance to

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calculate the capacitances taught by Quarles for the purpose of implementing Quarles's invention.

14. Claim 3 claims the load coil of Claim 1 wherein the capacitive elements have a capacitance in the range of 5 nF to 50 nF. As stated above apropos of Claim 1, Quarles discloses all relevant elements of that claim. Therefore, Quarles discloses all relevant elements of Claim 3 with the exception of explicit numerical specification of the capacitance values. As stated above apropos of Claim 2, the combination of Quarles and Federal Telephone and Radio Corporation teach capacitance values of between 17 nF and 34 nF. It would have been obvious to one skilled in the art at the time of the invention to utilize the published values for transmission line capacitance to calculate the capacitances taught by Quarles for the purpose of implementing Quarles's invention.

15. Claim 5 claims the load coil of Claim 1 wherein the capacitive elements increase the effective interwinding capacitance of the inductor windings by at least a factor of 5. As stated above apropos of Claim 2, the combination of Quarles and Federal Telephone and Radio Corporation teach capacitance values between 17 nF and 34 nF. Applicant discloses that capacitances in the range of 5 nF to 50 nF increase the effective interwinding capacitance by a factor of five to ten (page 13, lines 15-18). Therefore, it is inherent in the values taught by Quarles and Federal Telephone and Radio Corporation that they increase the effective interwinding capacitance of the inductor windings by at least a factor of 5.

16. Claim 24 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos of Claim 5.

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17: Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quarles in view of Baker (The Challenges of Implementing). Claim 4 claims the load coil of Claim 1 wherein the coupled inductor has an inductance of about 66 mH. As stated above apropos of Claim 1, Quarles discloses all relevant elements of that claim. Therefore, Quarles discloses all relevant elements of Claim 4 with the exception of specification of the inductance value. Baker discloses that 66 mH is one of the two most commonly used values for inductors used as loading coils in analog telephone systems (page 2, second heading). It would have been obvious to one skilled in the art at the time of the invention to use a load coil with a common inductance value in the system disclosed by Quarles for the purpose of having a loading coil easily obtainable in forms suitable for use in outside plant telephone installations.

18. Claims 6 through 8, 10, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pupin in view of Birck and further in view of well known prior art.

19. Claim 6 claims a load coil comprising a coupled inductor having first and second windings configured to improve transmission of POTS signals with a capacitor in parallel with each winding to permit passage of DSL signals across the coil with low attenuation. Pupin discloses a load coil comprising a coupled inductor (Fig. 3 and page 3, lines 39-41 and 50-53) configured to improve transmission of telephone signals (page 1, lines 17-19). Therefore, Pupin teaches all elements of Claim 6 with the exception of the capacitor in parallel with each winding to permit passage of DSL signals across the coil with low attenuation. Birck teaches the use of frequency selective elements to allow higher frequency signals to pass across loading coils (Fig. 1C and column 3 line 39 through column 4, line 8). It would have been obvious to one skilled in

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the art to apply the bypass by a frequency selective element as taught by Birck to the load coil taught by Pupin for the purpose of allowing higher frequency signals to be carried on the loaded line. Therefore, the combination of Pupin and Birck teaches all elements of Claim 6 with the exception of the use of capacitors as the frequency selective element. Examiner takes official notice that it was well known in the art that a capacitor provides a low impedance path for high frequency signals. It would have been obvious to one skilled in the art at the time of the invention to apply the use of capacitors as was well known in the art to the combination of Pupin and Birck for the purpose of providing the frequency selective device. Claim 6 contains language indicating the capacitances of the capacitive elements are selected based upon an intrawinding capacitance of an inductor winding. As stated above apropos of Claim 1, the method by which the capacitances are determined does not affect patentability.

20. Claim 7 claims the load coil of Claim 6 wherein the first and second capacitive elements have a capacitance in the range of 5 nF to 50 nF. As stated above apropos of Claim 6, the combination of Pupin, Birck and well known prior art teaches all the elements of that claim. Therefore, the combination teaches all the elements of Claim 7 with the exception of the numerical values for the capacitance of the capacitive elements. It would be obvious to one skilled in the art to select values for the capacitive elements such that the magnitude of the impedance of the capacitive elements would be similar to the resistance of a loop section. Since the resistance of a 6,000 foot length of 24 AWG copper wire is 154 ohms, and the lower bound of the ADSL signal band is 26 kHz, an obvious value for the capacitance would be a value, C, such that $1/(2\pi \cdot 26000C) = 154\Omega$. This results in a value for C of 40 nF. Therefore, it would have been obvious to one skilled in the art at the time of the invention to utilize capacitors with a

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value of 40 nF in the combination of Pupin, Birck and well known prior art for the purpose of providing a path for ADSL signals to bypass the load coil inductor with an impedance comparable in magnitude to the resistance of the copper loop section.

21. Claim 8 claims the load coil of Claim 6 wherein the first and second capacitive elements have a capacitance in the range of 10 nF to 82 nF. As stated above apropos of Claim 6, the combination of Pupin, Birck and well known prior art teaches all the elements of that claim. Therefore, the combination teaches all the elements of Claim 8 with the exception of the numerical values for the capacitance of the capacitive elements. As stated above apropos of Claim 7, it would have been obvious to one skilled in the art at the time of the invention to utilize capacitors with a value of 40 nF in Birck's load coil system for the purpose of providing a path for ADSL signals to bypass the load coil inductor with an impedance comparable to that of the copper loop section.

22. Claim 10 claims the load coil of Claim 6 wherein the capacitive elements increase the effective intrawinding capacitance of the inductor windings by at least a factor of 120. As stated above apropos of Claim 6, the combination of Pupin, Birck and well known prior art teaches all the elements of that claim. In addition, as stated above apropos of Claim 8, the combination teaches a capacitance value of 40 nF. Applicant discloses that capacitances in the range of 5 nF to 50 nF increase the effective intrawinding capacitance by a factor of 100 to 1000 (page 14, lines 16-21). Therefore, it is inherent in the value taught by the combination that it increases the effective intrawinding capacitance of the inductor windings by at least a factor of 120.

23. Claim 23 claims a system comprising: a first local loop including a first wire and a second wire; a second local loop including a third wire and a fourth wire; a coupled inductor

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including an inductor core, a first inductive winding coupling the first wire to the third wire and a second inductor winding coupling the second wire to the fourth wire; and capacitive elements including a first capacitor coupling the first wire to the third wire and a second capacitor coupling the second wire to the fourth wire. Claim 23 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos of Claim 6.

24. Claim 25 is essentially similar to Claim 10 and is rejected for the reasons stated above apropos of Claim 10.

25. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pupin in view of Birck and further in view of well known prior art as applied to Claim 6 above, and further in view of Baker. Claim 9 claims the load coil of Claim 6 wherein the coupled inductor has an inductance of about 66 mH. As stated above apropos of Claim 6, the combination of Pupin, Birck and well known prior art discloses all the elements of that claim. Therefore, the combination discloses all the elements of Claim 9 with the exception of specification of the inductance value. Baker discloses that 66 mH is one of the two most commonly used values for inductors used as loading coils in analog telephone systems (page 2, second heading). It would have been obvious to one skilled in the art at the time of the invention to apply the common inductance value of 66 mH to the combination taught by Pupin, Birck and well known prior art for the purpose of having a loading coil easily obtainable in forms suitable for use in outside plant telephone installations.

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26. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quarles in view of Vittore (Making DSL Go for the Long Run). Claim 17 claims a system for transmitting DSL and POTS signals comprising a load coil means including inductive means and capacitive means for improving DSL transmission across the load coil and DSL amplification means to amplify DSL signals. As stated above apropos of Claim 1, Quarles teaches all the elements of the load coil means. Therefore, Quarles teaches all elements of Claim 17 with the exception of DSL amplification means. Vittore discloses a DSL repeater that amplifies DSL signals (paragraph 11). It would have been obvious to one skilled in the art at the time of the invention to utilize the DSL amplifier disclosed by Vittore on a loop in addition to the load coil system taught by Quarles for the purpose of providing DSL service on loops in excess of 18,000 feet long (Vittore, paragraph 3). Claim 17 contains language indicating the capacitances of the capacitive means are based upon a capacitance of the inductive means. As stated above apropos of Claim 1, the method by which the capacitances are determined does not affect patentability.

27. Claims 11 and 13 through 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pupin in view of Birck and further in view of well known prior art and further in view of Vittore.

28. Claim 11 claims a system for transmitting DSL and POTS signals comprising a load coil including a coupled inductor and multiple capacitive elements for improving DSL transmission across the coil and a repeater which includes another load coil in series with the load coil to amplify DSL signals. As stated above apropos of Claim 6, the combination of Pupin, Birck and well known prior art teaches all the elements of the first load coil. Vittore discloses a DSL

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repeater that is selective of DSL signals and amplifies only them (paragraph 11). It would have been obvious to one skilled in the art at the time of the invention to utilize the frequency selective DSL amplifier disclosed by Vittore in the combination of Pupin, Birck and well known prior art for the purpose of providing the frequency selective element disclosed by Birck.

Further, it would have been obvious to one skilled in the art at the time of the invention to utilize the frequency selective amplifier and load coil combination on a loop in addition to the capacitor and load coil combination for the purpose of providing DSL service on loops in excess of 18,000 feet long (Vittore, paragraph 3). Claim 11 contains language indicating the capacitances of the capacitive elements are selected based upon a capacitance of the coupled inductor. As stated above apropos of Claim 1, the method by which the capacitances are determined does not affect Patentability.

29. Claim 13 claims the system of Claim 11 with first and second windings and capacitive elements disposed in parallel with those windings. As stated above apropos of Claim 11, the combination of Pupin, Birck, well known prior art and Vittore meets all elements of that claim. Further, as stated above apropos of Claim 6, the combination of Pupin, Birck and well known prior art meets all the additional elements of Claim 13. Therefore the combination of Pupin, Birck, well known prior art and Vittore meets all elements of Claim 13.

30. Claim 14 claims the system of Claim 11 wherein each capacitive element has a capacitance between 10 nF-82 nF. As stated above apropos of Claim 11, the combination of Pupin, Birck, well known prior art and Vittore have all the elements of that claim. Further, as stated above apropos of Claim 7, the combination of Pupin, Birck and well known prior art

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teaches the use of a value of 40 nF for the capacitive elements. Therefore the combination of Pupin, Birck, well known prior art and Vittore meets all elements of Claim 14.

31. Claim 15 claims the system of Claim 11 wherein each capacitive element has a capacitance between 5 nF-50 nF. As stated above apropos of Claim 11, the combination of Pupin, Birck, well known prior art and Vittore have all the elements of that claim. Further, as stated above apropos of Claim 7, the combination of Pupin, Birck and well known prior art teaches the use of a value of 40 nF for the capacitive elements. Therefore the combination of Pupin, Birck, well known prior art and Vittore meets all elements of Claim 15.

32. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pupin in view of Birck and further in view of well known prior art and further in view of Vittore as applied to Claim 11 above, and further in view of Quarles. Claim 12 claims the system of Claim 11 with first and seconds windings capacitive elements disposed diagonally across those windings. As stated above apropos of Claim 11, the combination of Pupin, Birck, well known prior art and Vittore meet all elements of that claim. Therefore the combination has all the elements of Claim 12 with the exception of the diagonal disposal of the capacitive elements. As stated above apropos of Claim 1, Quarles teaches diagonal disposal of capacitors in a loading coil. It would have been obvious to one skilled in the art at the time of the invention to apply the diagonal disposal of capacitors taught by Quarles to the combination for the purpose of reducing transient distortion.

Response to Arguments

33. Regarding Claims 1 through 17, 22 and 23 applicant's arguments filed 10 December 2002 have been fully considered but they are not persuasive. Applicant alleges that the method of determining the capacitance values of capacitors in the load coil patentably distinguishes the load coil from prior art. Examiner respectfully disagrees. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

34. Applicant's arguments with respect to Claims 18 through 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 703-305-4088. The examiner can normally be reached on Monday through Friday between 8:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on 703-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

ds
January 23, 2003


FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600